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A NEW POCKET GOPHER FROM LASSEN COUNTY, CALIFORNIA.

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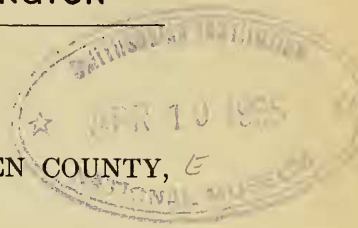
Museum of Vertebrate Zoology, University of California.

The week from May 27 to June 3, 1934, was occupied by Mrs. Hilda W. Grinnell and myself in scouting out in various directions for pocket gophers from our temporary headquarters at "Inspiration Point Auto Camp," just west of Susanville, Lassen County, California. It will be recalled by persons familiar with the literature of the genus *Thomomys* that races representative of four different groups have been recorded from that general vicinity, that is, from within a radius of twelve miles or so of Susanville. These forms, under their last published names (Grinnell, 1933, pp. 137-147) are: *Thomomys townsendii relictus*, *T. bottae leucodon*, *T. quadratus quadratus*, and *T. monticola monticola*. One of these, *leucodon*, had been recorded (Bailey, 1915, p. 49) on the basis of three specimens from "Susanville" and, because it provided the only instance of a northern representative of the Pacific-slope *bottae* group having been collected within the Great Basin drainage, I was anxious to learn more of its status there. A series of thirteen specimens (nos. 63347-59, Mus. Vert. Zool.) was finally gathered, and these proved so uniform in characters, and presented a combination of features so unique in the "*leucodon*" complex, that formal naming of a new race based on them is in order. Furthermore, our findings indicate for it a separate, sequestered area of occupancy.

***Thomomys bottae saxatilis*, new subspecies.**

Susanville Pocket Gopher.

Type.—Mature female, skull and skin; no. 63354, Mus. Vert. Zool.; open, rocky, uncultivated ground, one mile north of Susanville, at 4400



feet altitude, Lassen County, California; May 31, 1934; collected by J. and H. W. Grinnell (orig. no. 7341).

Diagnosis.—Externally like *T. b. leucodon* Merriam (series in Mus. Vert. Zool. from near Grants Pass and Medford, Oregon, recently collected and presented to the Museum by Mr. Henry S. Fitch), but general size slightly smaller; tone of brown coloration above about as deep, but lower surface very much paler, near Tilleul-Buff (of Ridgway, 1912, pl. XL) as compared with Cinnamon in *leucodon*. Skull different in notable respects from that of topotypical *leucodon*, as also in various ways from skulls of other races in the *bottae* group; in general: light, not heavily ridged, and flat-topped; temporal ridges indistinct and far apart; braincase small; rostrum very narrow; premaxillary tongues narrow; lacrimal bones conspicuously developed and up-turned (so that they are felt when the finger is moved over the top of the skull); interparietal bone very short (extreme in the *bottae* group), being nearly twice as broad as long, and length of parietals along interparietal suture complementarily long; occipital plane of braincase nearly vertical, not sloping; superior outline of foramen magnum forming segment of a nearly perfect circle—not notched or otherwise angular; auditory bulla rather small, with a depression or at least a flat place, marked by translucent bone, on lateral lower surface; anterior zygomatic roots narrow and weak, and maxillary “shelf” deeply restricted or emarginate behind; incisor teeth slender, exceedingly long and forward-projecting—extreme in the *bottae* group; faces of incisor teeth in many cases entirely whitish, in some cases partly or weakly yellowish.

Measurements.—Of type, female: weight 103.6 g.; total length 200 mm.; tail 57; hind foot 27; ear from crown 3.5; skull: basilar length 32.9; length nasals 11.9; zygomatic breadth 24.7; mastoid breadth 19.2; width rostrum at middle 7.1; interorbital width 6.8; interparietal bone: length 3.2, breadth 5.7; alveolar length upper molar series 7.3; anterior face of incisor to anterior margin of alveolus of premolar 17.6. Of male, no. 63351, same data as type: weight 154.3 g.; total length 218 mm.; tail 66; hind foot 29; ear from crown 4; skull: basilar length 35.1; length nasals 13.5; zygomatic breadth 27.8; mastoid breadth 20.7; width rostrum at middle 8; interorbital width 6.3; interparietal bone: length 4, breadth (at base) 6.4 (but compressed medially through approach of temporal ridges to an interval of 4.3); alveolar length upper molar series 7.8; anterior face of incisor to anterior margin of alveolus of premolar 19.6.

Distribution.—So far as now known, the upper (western) part of the valley of the east-flowing Susan River, Lassen County, California; life-zone, Upper Sonoran and low Transition. Specimens examined from: close to highway at 4800 ft. alt., 9 miles west of Susanville, 2; close to highway, near Inspiration Point, at 4400 ft., 1 mile west of Susanville, 1; O’Kelly ranch, adjacent to Piute Creek at 4200 ft., 1 mile northwest of Susanville, 1; open, level, gently sloping area at 4400 ft., 1 mile north of Susanville, 7; edge of Faulkner ranch, adjacent to Gold Run, 4200 ft., 4½ miles south of Susanville, 2. The conspicuous Great Basin faunal “indicator,” antelope brush (*Purshia tridentata*), grew in the vicinity of all of these places of capture. Ground in each case, save one, notably rocky, with soil

reddish, clayey, and exceedingly sticky when wet; the exception was the one from the O'Kelly ranch, which was taken in a clover pasture, of dark soil, yet within 30 yards of an uncultivated stony hillside with antelope brush growing on it.

Comparisons and Remarks.—The nearest relatives in the Austral, *bottae* group at hand from the western, Sacramento Valley slope of the Sierra-Cascade mountain system—are from the vicinity of Lyonsville, Tehama County, 60 miles almost due west of Susanville. Although recorded under the name *leucodon* (Grinnell, Dixon and Linsdale, 1930, p. 496) these specimens are not at all typical of true *leucodon*; yet they do not seem to me to approach *saxatilis* in any significant combination of respects. Rather, do they approach in several respects *T. b. mewa*, of the lower western slope of the more southern Sierra Nevada. Even though it is probably this same west-slope "differentiate" that extends east up the Feather River drainage as far as Lake Almanor (specimen from Prattville recorded by Bailey, *loc. cit.*, but not seen by me), it would appear that the range of *saxatilis* is now cut off from "*leucodon*" (or *mewa*) by the continuous north-south range of the Boreal *T. monticola*.

To test out this matter, Mrs. Grinnell and I trapped west from Susanville, up over Fredonyer Pass and west to Westwood. Two miles east of Westwood, at 4800 ft. alt., high Transition zone, in the forest floor, we got *monticola*. Right in Fredonyer Pass, 5752 ft. alt., at side of highway over top of the divide at this latitude, between the Susan River and Feather River drainages, in floor of high Transition forest, we got *monticola*. And we got *monticola* again on the highway, at 4600 ft., where it traverses the southward, Transition-zone slope of the mountain on the south side of Eagle Lake, and north of the canyon of the Susan River. Then there are various stations for *monticola* already recorded, westward from Eagle Lake (Grinnell, Dixon and Linsdale, *op. cit.*, fig. 86 and p. 497); and in the Museum is a specimen from a point in the Plumas National Forest 8 miles south of Susanville.

Of course there is a chance that colonies of *bottae* gophers still exist some place or other quite close together in a course across the mountains, so that the range of the peripheral differentiate, *saxatilis*, would not be so completely isolated as is here indicated. However, there can be no question of the origin of the ancestral stock of that form—from the west, at some period when climatic or floral shifts brought conditions more favorable over the intervening territory, to the *bottae* than to the *monticola* kind of gopher. (Incidentally, all the facts at my command indicate that these two species of gopher, distributionally, are mutually exclusive.)

To discuss further the cranial characters of the new race: While old males of *saxatilis*, taking into account their larger size, show most of the subspecific peculiarities above set forth for females, there is one character which seemingly fails in the former sex. This is shape of interparietal, which is, in the adult males, squarish, therefore more nearly normal for *bottae*. But the following facts argue that this is a secondary condition, acquired in the individual as the skull (in the male) grows bigger, the bones get heavier, and the temporal ridges advance toward the median line (though

not reaching it to form a sagittal crest in any of the five examples at hand). Appeal was taken to juvenile males; and it happens that two comparable individuals, of *leucodon* and *saxatilis*, respectively, are at hand, as follows: ♂ juv., no. 60350, from near Grants Pass, Oregon, June 9, 1933, H. S. Fitch; weight 65.7 grams, total length 181 mm.; and ♂ juv., no. 63357, from near Susanville, California, May 31, 1934, J. and H. W. Grinnell: weight 60.4 grams, total length 170 mm. It can thus be said that these two males are but half-grown at most; yet they show nearly every one of the differentiating features of their respective subspecies in almost as extreme measure as the adult females. Take that matter of the interparietal bones: the young male *leucodon* presents dimensions of 4.1 by 7.1, while in the young *saxatilis* the bone is 2.6 by 5.6 mm., being less than half its surficial area in the other. Others of the diagnostic features of the latter as compared with the former are smaller braincase, flatter top of skull, narrower zygomatic spread anteriorly, more restricted or emarginate maxillary shelf, more nearly circular foramen magnum, and slenderer incisor teeth. I suspect strongly that these are innate, germinal features, hence of real phylogenetic significance. Even as to coloration, the pallor of the lower surface in *saxatilis* makes it strikingly different from the Warm Buff tone of the lower surface of the young *leucodon*.

The range of *Thomomys bottae saxatilis* is apparently hemmed in to the eastward down the valley of the Susan River by that of the huge *Thomomys townsendii relictus*. Our findings concerning the latter species this year supplement those of 12 years ago (see Grinnell, 1926) as follows. We saved 12 additional specimens from three localities: the ranch of Lester Clark, 3 miles south (and a bit east) of Susanville, along-side of Gold Run, 4200 ft. alt.; the E. B. Coffin ranch, 4½ miles northeast (a bit east) of Susanville, in a canyon mouth at 4600 ft., at the foot of the steeply rising mountain on the north side of Susan River Valley; and on the Gibson ranch, at 4000 ft., 2 miles east of Litchfield, at south base of Shaffer Peak. In each place, the gophers caught were in fine-grained, when dry, powdery, soil of alfalfa fields. We saw the enormous mounds also on uncultivated ground of the same character at various points all the way to Amedee, on the east side of Honey Lake (now dust dry). Locally, this type of soil is called "volcanic ash." Where not cultivated the ground occupied by *relictus* is covered scatteringly by salt-grass (*Distichlis spicata*) and by bushes of "black greasewood" (*Sarcobatus vermiculatus*). Indeed, *relictus* under natural conditions was just about as surely associated with *Sarcobatus* as *saxatilis* was with *Purshia*; yet it is not likely that in either case the rodent was in any degree dependent upon the particular plant. Workings of *relictus* were seen also on the *Sarcobatus* flats out from the east base of Bald Mountain and thence southwest up the valley of Baxter Creek, to the crossing of the road approaching Buntingville from the northeast. Although we were told of "small" gophers having been caught in fields where we caught *relictus*, we found no evidence for believing them to have been other than young individuals of *relictus*. So far, we have no established instance in this region of any two kinds of gophers inhabiting precisely the same local area.

As regards *Thomomys quadratus quadratus*, Bailey (*op. cit.*, p. 115)

records 2 specimens from "Susanville (4 miles south)". We failed to find this species, though we saw very small workings of gophers among lava blocks on very stony, juniper-grown slopes within 2 miles northeast of Susanville, that might have pertained to it. The nearest specimens at hand from Lassen County are from Secret Valley (see Grinnell, Dixon and Linsdale, *op. cit.*, p. 497), the waters from which (when any) reach the Susan River by the way of Willow Creek. But this circumstance is irrelevant because *quadratus* is an upland gopher, and drainage slope probably does not affect its distribution any more than in the case of *monticola*. However, this factor *does* probably vitally restrict *relictus* because of the latter's obvious dependence upon fine-textured, rock-free substratum, such as has accumulated through the ages to form the floor of Honey Lake Valley and of its intransit valleys, those of the Susan River, Baxter Creek, and the creek northeast of Susanville that comes down through the Coffin ranch.

There is thus in this region of Lassen County an almost completely satisfactory demonstration of sharp delimitation of the ranges of species in the genus *Thomomys* by the factor of soil texture.

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